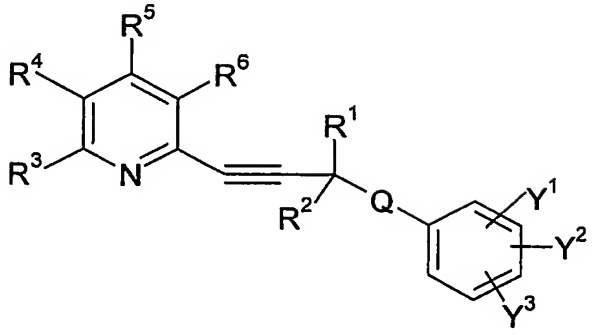
Claims

1. A compound of formula I



(I)

wherein

R^1 is selected from hydrogen, C_1-C_4 alkyl, C_3-C_6 cycloalkyl, aryl and heteroaryl, wherein the aryl or heteroaryl may be substituted by C_1-C_4 alkyl;

R^2 is selected from hydrogen and C_1-C_4 alkyl;

R^3 is selected from hydrogen, C_1-C_4 alkyl, F, CF_3, CHF_2 and CH_2F;

R^4 is selected from hydrogen, F, CF_3, CHF_2, CH_2F and CH_3;

R^5 is selected from hydrogen and F;

R^6 is selected from hydrogen and F;

Q is selected from C_1-C_4 alkyl, optionally substituted by C_1-C_4 alkyl or C_1-C_4 alkoxy;

Y^1 is selected from hydrogen; halogen; nitrile; C_1-C_4 alkoxy; C_1-C_4 alkyl wherein one or more of the hydrogen atoms of the alkyl group may be substituted for a fluorine atom; benzyloxy; nitro in the meta or para position; and C_1-C_4 alkyl ester;

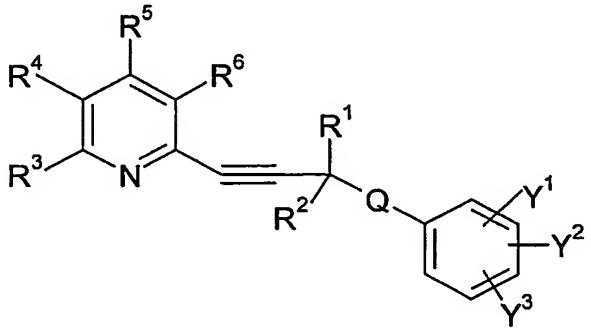
Y^2 is selected from hydrogen; halogen; nitrile; C_1-C_4 alkoxy; C_1-C_4 alkyl wherein one or more of the hydrogen atoms of the alkyl group may be substituted for a fluorine atom; and C_1-C_4 alkyl ester;

Y^3 is selected from hydrogen; halogen; nitrile; C_1-C_4 alkoxy; C_1-C_4 alkyl wherein one or more of the hydrogen atoms of the alkyl group may be substituted for a fluorine atom; and C_1-C_4 alkyl ester; or

Y^1 and Y^2 may form an aromatic or non-aromatic ring, optionally substituted by halogen, nitrile, C_1-C_4 alkoxy, C_1-C_4 alkyl wherein one or more of the hydrogen atoms of the alkyl group may be substituted for a fluorine atom, benzyloxy or C_1-C_4 alkyl ester;

as well as pharmaceutically acceptable salts, hydrates, isoforms and/or optical isomers thereof, with the exception of 4-(4-pyridin-2-yl-but-3-ynyl)-benzonitrile.

2. A compound of formula I



(I)

wherein

R^1 is selected from hydrogen, C_1-C_4 alkyl, C_3-C_6 cycloalkyl, aryl and heteroaryl, wherein the aryl or heteroaryl may be substituted by C_1-C_4 alkyl;

R^2 is selected from hydrogen and C_1-C_4 alkyl;

R^3 is selected from hydrogen, C_1-C_4 alkyl, F, CF_3, CHF_2 and CH_2F;

R^4 is selected from hydrogen, F, CF_3, CHF_2, CH_2F and CH_3;

R^5 is selected from hydrogen and F;

R^6 is selected from hydrogen and F;

Q is selected from C_1-C_4 alkyl, optionally substituted by C_1-C_4 alkyl or C_1-C_4 alkoxy;

Y^1 is selected from hydrogen, halogen, nitrile, C_1-C_4 alkoxy, and C_1-C_4 alkyl;
Y^2 is selected from hydrogen, halogen, nitrile, C_1-C_4 alkoxy, and C_1-C_4 alkyl;
Y^3 is selected from hydrogen, halogen, nitrile, C_1-C_4 alkoxy, and C_1-C_4 alkyl;
as well as pharmaceutically acceptable salts, hydrates, isoforms and/or optical isomers thereof, with the exception of 4-(4-pyridin-2-yl-but-3-ynyl)-benzonitrile.

3. A compound according to formula I of claim 1 or 2, wherein
R^1 is hydrogen or C_1-C_3 alkyl;
R^2 is hydrogen;
R^3 is selected from hydrogen and methyl;
R^4 is hydrogen;
R^5 is hydrogen;
R^6 is hydrogen;
Q is C_1-C_2 alkyl, optionally substituted by C_1-C_2 alkyl;
Y^1 is selected from hydrogen, chloro, C_1-C_2 alkoxy, and C_1-C_2 alkyl; and
Y^2 is selected from hydrogen, chloro, C_1-C_2 alkoxy, and C_1-C_2 alkyl; and
Y^3 is hydrogen.

4. A compound according to claim 1 selected from 2-[4-(3-chlorophenyl)but-1-yn-1-yl]-6-methylpyridine, 2-[4-(3-methoxyphenyl)but-1 -yn-1-yl]-6-methylpyridine, 2-methyl-6-[4-(3-methylphenyl)but-1-yn-1-yl]pyridine, 2-methyl-6-(4-phenylbut-1-yn-1-yl)pyridine and 2-methyl-6-(4-phenylpent-1-yn-1-yl)pyridine.

5. A compound according to any one of claims 1-4 for use in therapy.

6. A compound according to claim 5, wherein the therapy is treatment or prevention of gastroesophageal reflux disease.

7. Use of a compound according to formula I of claim 1 or 2, or a pharmaceutically acceptable salt or an optical isomer thereof, for the manufacture of a medicament for the inhibition of transient lower esophageal sphincter relaxations.

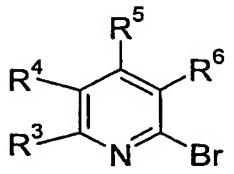
8. Use of a compound according to formula I of claim 1 or 2, or a pharmaceutically acceptable salt or an optical isomer thereof, for the manufacture of a medicament for treatment or prevention of gastroesophageal reflux disease.

9. Use of 4-(4-pyridin-2-yl-but-3-ynyl)-benzonitrile or a pharmaceutically acceptable salt or an optical isomer thereof, for the manufacture of a medicament for the inhibition of transient lower esophageal sphincter relaxations.

10. Use of 4-(4-pyridin-2-yl-but-3-ynyl)-benzonitrile or a pharmaceutically acceptable salt or an optical isomer thereof, for the manufacture of a medicament for treatment or prevention of gastroesophageal reflux disease.

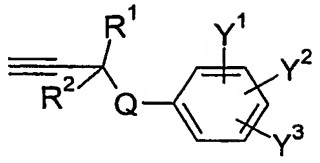
11. A pharmaceutical composition comprising a compound of formula I of claim 1 or 2 as an active ingredient, together with a pharmacologically and pharmaceutically acceptable carrier.

12. A process for the preparation of a compound of formula I, whereby a coupling reaction of an aryl bromide A



A

and an alkyne B



B

is performed in the presence of a base such as triethyl amine at room temperature to 60 °C, and wherein

R^1 is selected from hydrogen, C_1-C_4 alkyl, C_3-C_6 cycloalkyl, aryl and heteroaryl, wherein the aryl or heteroaryl may be substituted by C_1-C_4 alkyl;

R^2 is selected from hydrogen and C_1-C_4 alkyl;

R^3 is selected from hydrogen, C_1-C_4 alkyl, F, CF_3, CHF_2 and CH_2F;

R^4 is selected from hydrogen, F, CF_3, CHF_2, CH_2F and CH_3;

R^5 is selected from hydrogen and F;

R^6 is selected from hydrogen and F;

Q is selected from C_1-C_4 alkyl, optionally substituted by C_1-C_4 alkyl or C_1-C_4 alkoxy;

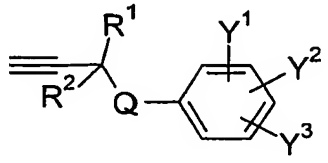
Y^1 is selected from hydrogen; halogen; nitrile; C_1-C_4 alkoxy; C_1-C_4 alkyl wherein one or more of the hydrogen atoms of the alkyl group may be substituted for a fluorine atom; benzyloxy; nitro in the meta or para position; and C_1-C_4 alkyl ester;

Y^2 is selected from hydrogen; halogen; nitrile; C_1-C_4 alkoxy; C_1-C_4 alkyl wherein one or more of the hydrogen atoms of the alkyl group may be substituted for a fluorine atom; and C_1-C_4 alkyl ester;

Y^3 is selected from hydrogen; halogen; nitrile; C_1-C_4 alkoxy; C_1-C_4 alkyl wherein one or more of the hydrogen atoms of the alkyl group may be substituted for a fluorine atom; and C_1-C_4 alkyl ester; or

Y^1 and Y^2 may form an aromatic or non-aromatic ring, optionally substituted by halogen, nitrile, C_1-C_4 alkoxy, C_1-C_4 alkyl wherein one or more of the hydrogen atoms of the alkyl group may be substituted for a fluorine atom, benzyloxy or C_1-C_4 alkyl ester.

13. A compound of formula B



B

wherein

R^1 is selected from hydrogen, C_1-C_4 alkyl, C_3-C_6 cycloalkyl, aryl and heteroaryl, wherein the aryl or heteroaryl may be substituted by C_1-C_4 alkyl;

R^2 is selected from hydrogen and C_1-C_4 alkyl;

R^3 is selected from hydrogen, C_1-C_4 alkyl, F, CF_3, CHF_2 and CH_2F;

R^4 is selected from hydrogen, F, CF_3, CHF_2, CH_2F and CH_3;

Q is selected from C_1-C_4 alkyl, optionally substituted by C_1-C_4 alkyl or C_1-C_4 alkoxy;

Y^1 is selected from hydrogen; halogen; nitrile; C_1-C_4 alkoxy; C_1-C_4 alkyl wherein one or more of the hydrogen atoms of the alkyl group may be substituted for a fluorine atom; benzyloxy; nitro in the meta or para position; and C_1-C_4 alkyl ester;

Y^2 is selected from hydrogen; halogen; nitrile; C_1-C_4 alkoxy; C_1-C_4 alkyl wherein one or more of the hydrogen atoms of the alkyl group may be substituted for a fluorine atom; and C_1-C_4 alkyl ester;

Y^3 is selected from hydrogen; halogen; nitrile; C_1-C_4 alkoxy; C_1-C_4 alkyl wherein one or more of the hydrogen atoms of the alkyl group may be substituted for a fluorine atom; and C_1-C_4 alkyl ester; or

Y^1 and Y^2 may form an aromatic or non-aromatic ring, optionally substituted by halogen, nitrile, C_1-C_4 alkoxy, C_1-C_4 alkyl wherein one or more of the hydrogen atoms of the alkyl group may be substituted for a fluorine atom, benzyloxy or C_1-C_4 alkyl ester.

14. A compound selected from 1-chloro-3-(4,4-dibromobut-3-en-1-yl)benzene; 1-methoxy-3-(4,4-dibromobut-3-en-1-yl)benzene; 1-methyl-3-(4,4-dibromobut-3-en-

1-yl)benzene; 1-but-3-yn-1-yl-3-chlorobenzene; and (4,4-Dibromo-1-methyl-but-3-enyl)-benzene.

15. A method for the inhibition of transient lower esophageal sphincter relaxations whereby an effective amount of a compound of formula I of claim 1 or 2 is administered to a subject in need of such inhibition.

16. A method for the treatment or prevention of gastroesophageal reflux disease, whereby an effective amount of a compound of formula I or claim 1 or 2 is administered to a subject in need of such treatment or prevention.